

# **ELECTRONIC BALLAST SYSTEM FOR EMERGENCY LIGHTING APPLICATIONS**

## **ABSTRACT**

An electronic ballast system with emergency lighting features is  
5 presented. Especially, the electronic ballast system is relative to a single-stage  
converter configuration. The electronic ballast system serves as a regular  
ballast, a regular/emergency ballast, a battery charger or discharger and a  
power failure detector, fulfilling emergency lighting features. The single-stage  
converter used in the ballast is an integration of a bi-directional flyback  
10 converter and two half-bridge series-resonant parallel-loaded inverters. Unlike  
conventional approaches, the rectified and filtered input voltage is directly  
added to a set of battery voltages in the proposed system, so as to reduce the  
fabrication cost by simplifying the circuit configuration and the number of  
active switching elements.

15